

# The Scale and Cost of Seasonal Harvesting Restrictions in Wisconsin

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03-29-16



# Seasonal Harvesting Restrictions

- Purpose: protect the forest resource
- Example restrictions:
  - Winter only to protect soil
  - Oak wilt – no harvest April 1<sup>st</sup> or 15<sup>th</sup> – July 15<sup>th</sup>
  - Conifer stump treatment outside winter
  - Seasonal weight limits



# Potential Impact of Seasonal Restrictions

- Reduced stumpage prices
  - \$65.82/ac reduction in MN
- Reduced logging capacity utilization
  - Weather-related down time
  - Less timber available seasonally
- Increased harvesting costs
  - BMPs cost \$1,562 per site in Arkansas
- Increased timber procurement costs
  - Inventory costs
  - Seasonal increases in delivered prices



# Research Goals

1. Identify most common seasonal restrictions and motivations for them,
2. Estimate the cost of seasonal restrictions to landowners and forest industry, and
3. Summarize known ecological consequences of seasonal harvesting restrictions.



# Methods – Timber Sale Analysis

- Analyzed WI DNR timber sale data for sales closed in 2013
  - 184 state sales
  - 100 county forest
  - 105 managed forest law (MFL) sales
  - 56 private, non-MFL sales
- Sales were classified by forest cover and soil type
  - Forest cover: upland hardwood, lowland hardwood, upland conifer, or lowland conifer
  - Soil types: sandy, loam, clay, wetland, mixed



# Methods – Analysis of Bid Results

- Analyzed bid results from 2014 timber sales on Wisconsin County Forests
  - Collected prospectuses and bid results from 660 sales from 28 of 29 counties
- Used multiple linear regression to measure impact of seasonal restrictions and other variables on bidding behavior

**EAU CLAIRE COUNTY PARKS & FOREST  
Spring 2014 TIMBER SALES BROCHURE  
SCS-FM/COC-0083G-E**

Attached are maps of the eleven timber sales available in the Eau Claire County Forest – tracts 17-13 thru 6-14. Loggers are expected to preview sales before bidding. Also attached are timber bid sheets, information on the mill scale ticket system, and right-of-way contacts.

**Ammonium Root Rot Prevention**  
Purchaser shall apply Cellu-Treat (or equivalent) fungicide to all pine stumps within 24 hours of tree cutting. Purchaser shall apply Cellu-Treat (or equivalent) according to product label directions. County will provide the Cellu-Treat (or equivalent) product and dye. County will also provide the purchaser with a backpack sprayer if needed. Application of Cellu-Treat (or equivalent) is not required if the high temperature on the day of harvest is less than 32 degrees.

**TOTAL ESTIMATED TIMBER VOLUMES**

Aspen Pulp	740 tons	Red Pine Pulp	4475 tons
Mixed Hardwood Pulp	4450 tons	White Pine Pulp	430 tons
Red Maple	414 tons	Oak Logs	487 MBF
Oak Pulp	10805 tons	Mix Hardwood Logs	33 MBF
Oak Bolts	430 cords	White Pine Logs	53 MBF

**Ashland County Timber Sale Bid Results - December 2014**

124 acres		* Bidder		Bidder	Bidder
Species	Volume	Min Bid	Min Price	Schloer	Bidder
MX Hardwood Pulp	600	\$15.00	\$9,000.00	\$38.00	
Basswood Pulp	400	\$1.00	\$400.00	\$20.00	
Balsam Fir Pulp	80	\$15.00	\$1,200.00	\$20.00	
Aspen Pulp	350	\$15.00	\$5,250.00	\$40.00	
Ash Pulp	150	\$15.00	\$2,250.00	\$20.00	
Tamarack Pulp	200	\$15.00	\$3,000.00	\$35.00	
Spruce Pulp	100	\$15.00	\$1,500.00	\$30.00	
Hard Maple Logs	4	\$120.00	\$480.00	\$200.00	
Mix Hdw Log	1	\$100.00	\$100.00	\$150.00	
Basswood Logs	5	\$80.00	\$400.00	\$180.00	
Ash Logs	3.5	\$100.00	\$350.00	\$150.00	
<b>Total</b>			<b>\$23,930.00</b>	<b>\$61,375.00</b>	\$0.00 \$0.00 \$0.00

156 acres		* Bidder		Bidder	Bidder
Species	Volume	Min Bid	Min Price	Ashland Mat	Schloer
MX Hardwood Pulp	800	\$15.00	\$12,000.00	\$47.97	\$25.00
Aspen Pulp	180	\$15.00	\$2,700.00	\$39.35	\$25.00
Balsam Fir Pulp	300	\$15.00	\$4,500.00	\$15.88	\$15.00
Black Ash Pulp	40	\$15.00	\$600.00	\$24.80	\$15.00
Tamarack Pulp	250	\$15.00	\$3,750.00	\$24.64	\$25.00
Black Spruce Pulp	80	\$15.00	\$1,200.00	\$20.48	\$25.00
Hard Maple Logs	32	\$120.00	\$3,840.00	\$46.10	\$300.00
Red maple Logs	42	\$100.00	\$4,200.00	\$340.84	\$200.00
Yellow Birch Logs	9	\$100.00	\$900.00	\$333.30	\$150.00
Black Ash Logs	2	\$100.00	\$200.00	\$42.10	\$120.00
Mix Hdw Log	1	\$100.00	\$100.00	\$166.10	\$120.00
<b>Total</b>			<b>\$33,990.00</b>	<b>\$7,053.68</b>	<b>\$57,860.00</b>

204 acres		* Bidder		Bidder	Bidder
Species	Volume	Min Bid	Min Price	Schloer	Bidder
MX Hardwood Pulp	1000	\$15.00	\$15,000.00	\$38.00	
Aspen Pulp	80	\$10.50	\$840.00	\$38.00	
Balsam Fir Pulp	320	\$10.50	\$3,360.00	\$25.00	
Black Spruce Pulp	45	\$10.50	\$472.50	\$35.00	
Black Ash Pulp	200	\$10.35	\$2,070.00	\$25.00	
Hard Maple Logs	31	\$90.00	\$2,790.00	\$240.00	
Red maple Logs	12	\$70.00	\$840.00	\$200.00	
Yellow Birch Logs	28	\$70.00	\$1,960.00	\$200.00	
Black Ash Logs	13	\$61.00	\$793.00	\$100.00	
Mix Hdw Log	1	\$70.00	\$70.00	\$150.00	
<b>Total</b>			<b>\$28,195.50</b>	<b>\$72,815.00</b>	\$0.00 \$0.00 \$0.00



# Methods – Surveys

- Forester survey
  - WDNR cooperating foresters and public sector foresters
    - Private sector: 184 foresters – consultants and industry
    - Public sector: 197 foresters – State, Counties, and Forest Service
  - Response rate = 65.0%
- Mill survey
  - Mail survey of 165 mills
    - Pulpmills (including composite mills)
    - Small sawmills (<50,000 tons/yr)
    - Medium & large sawmills (50,000+ tons/yr)
  - Response rate = 39.0%
- Dillman (2007) Tailored Design Method for both surveys

University of Wisconsin-Stevens Point  
College of Natural Resources

forestGUILD

UW-Stevens Point & Forest Guild Forester Survey

Frequency and Rationale for Seasonal Restrictions

1. During a typical year, what percentage of the timber sales that you prepare or administer include the following types of restrictions? (Please check one box per item)

	Rarely or Never	1-5%	6-10%	11-25%	26-50%	51-75%	76-90%	100%
Access/transportation restrictions	<input checked="" type="radio"/>	<input type="radio"/>						
Armscum root rot restrictions	<input checked="" type="radio"/>	<input type="radio"/>						
Biomass harvesting guidelines (e.g. retain coarse woody debris)	<input checked="" type="radio"/>	<input type="radio"/>						
Cultural or archeological restrictions	<input checked="" type="radio"/>	<input type="radio"/>						
Invasive species best management practices	<input checked="" type="radio"/>	<input type="radio"/>						
Oak wilt restrictions	<input checked="" type="radio"/>	<input type="radio"/>						
Pest restrictions (other than oak wilt or armscum)	<input checked="" type="radio"/>	<input type="radio"/>						
Rare species/wildlife restrictions	<input checked="" type="radio"/>	<input type="radio"/>						
Recreation-related restrictions (e.g. deer hunting, winter sports, etc.)	<input checked="" type="radio"/>	<input type="radio"/>						
Soil/hydrological disturbance (rutting, compaction, runoff, etc.) restrictions	<input checked="" type="radio"/>	<input type="radio"/>						
Requiring that an aspen stand be harvested in the winter	<input checked="" type="radio"/>	<input type="radio"/>						
Water quality best management practices	<input checked="" type="radio"/>	<input type="radio"/>						



# Results – Timber Sale Availability by Month

Ownership	Percent of timber sales available by Month											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
<b>State</b>	100	100	75	52	52	52	56	87	87	87	87	100
<b>County</b>	99	99	72	43	43	44	46	67	67	67	67	100
<b>MFL</b>	100	100	67	31	30	30	32	59	61	61	61	100
<b>Non-MFL</b>	100	100	88	77	77	77	77	91	91	91	91	98
<b>Total</b>	100	100	74	47	46	47	49	73	73	73	73	100





# Commonly Restricted Periods for Timber Harvesting in WI

Rationale	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Wood turtle												
Blanding's turtle												
Northern goshawk												
Northern long-eared bat												
Oak wilt												
Annosum root rot												
Hydrology/soil*												
Recreation*												

\* These restrictions are specific to site and/or landowner preferences and thus the timing of application can be variable.



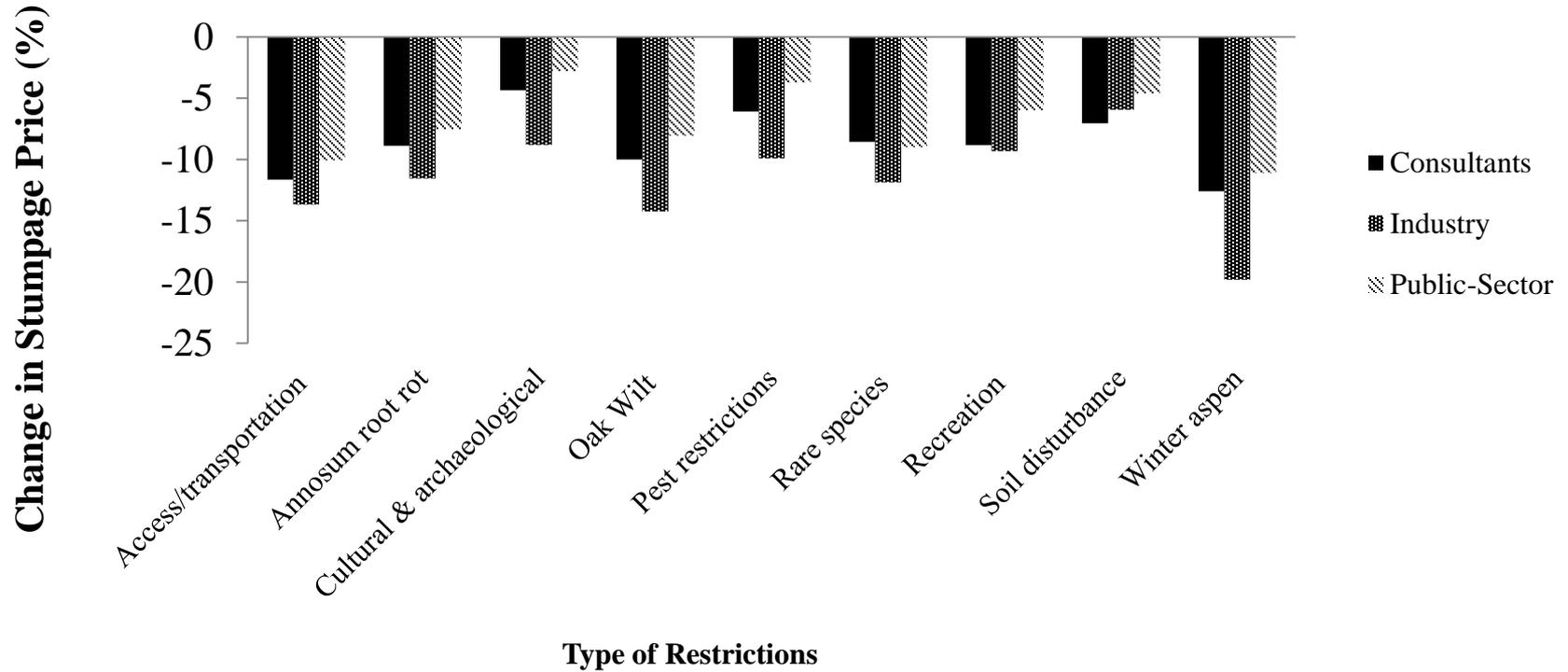
# Rationale for Restrictions

- Forester survey results agreed with timber sale analysis
- Most common motivations for restrictions were landowner goals and professional judgment

Restriction	Most common motivation	2 <sup>nd</sup> most common motivation
Access/transportation	Landowner objectives (57%)	Professional judgment (56%)
Oak wilt	Professional judgment (67%)	Program requirements (e.g. MFL) (54%)
Recreation	Landowner objectives (81%)	Professional judgment (15%)
Soil disturbance	Professional judgment (78%)	Forest certification (62%)



# Stumpage Price Reductions



# Seasonal Restrictions' Cost to Landowners

- Total cost to landowners = \$22.2 million per year
  - \$3.15 per ton of restricted timber
- Cost calculated by combining survey results and published harvest volumes and stumpage prices by species
  - Harvest volume by species (2009-2012)
  - Percent of sales restricted based on timber sale analysis
  - Percent stumpage reduction from survey results
  - Weighted average stumpage prices from Timber Mart North



# 2014 County Forest Timber Sale Analysis

- 67% had at least one seasonal restriction
- 34% of sales were restricted to winter harvesting
- Winter-only sales received 3.32 bids per sale
  - Received 4.78 bids per sale in other sales
- Winter-only restriction reduced bids by \$141/ac



# Forest Industry Response to Restrictions

1. High inventory levels
2. Use of satellite wood yards
3. Increases in delivered prices

Practice	Mill type <sup>1</sup>	Percent of respondents		
		Increased	No change	Decreased
Inventory level	Medium and large sawmill	20	50	30
	Small sawmill	42	35	23
	Pulpmill	89	0	11
Satellite wood yards	Medium and large sawmill	40	50	10
	Small sawmill	8	92	0
	Pulpmill	89	11	0
Delivered price	Medium and large sawmill	70	30	0
	Small sawmill	46	54	0
	Pulpmill	89	11	0

<sup>1</sup>Medium and large sawmill = 50,000+tons; Small sawmill = <50,000 tons

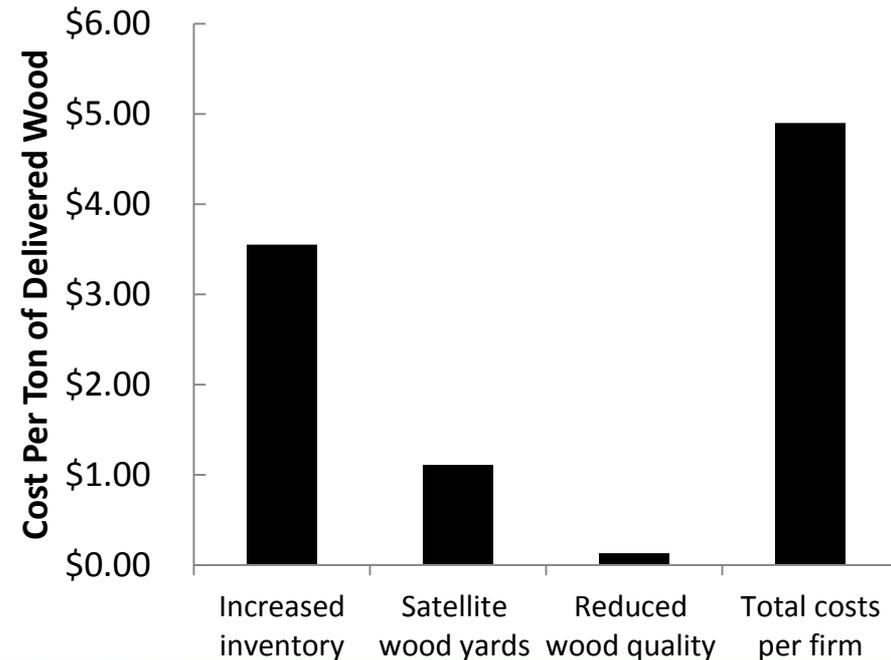


# Seasonal Restrictions' Cost to Pulpmills

## Total annual cost

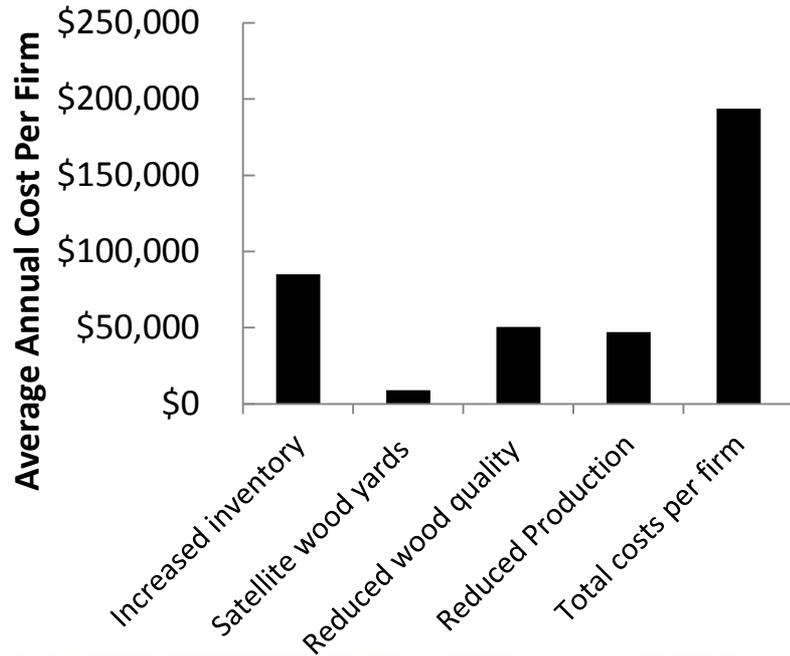


## Cost per ton of delivered wood

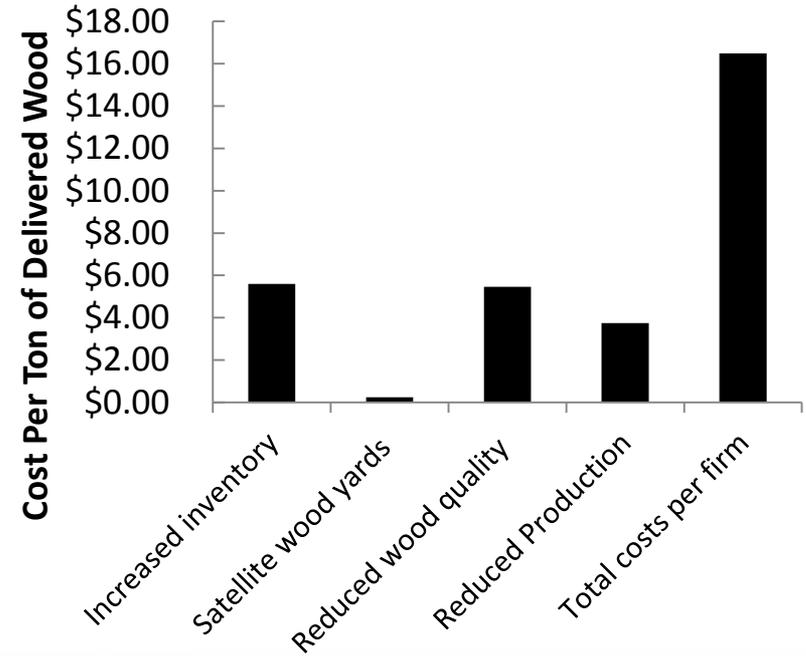


# Seasonal Restrictions' Cost to Small Sawmills

## Total annual cost



## Cost per ton of delivered wood



# Most Impactful Restrictions for Mills

- Oak wilt
  - Rated most burdensome by pulpmills and small sawmills
- Access/transportation
- Seasonal weight limits



# Literature Review

- Literature generally supportive of the need to protect resources
  - Stump treatments to prevent annosum root rot
  - Seasonal restrictions to protect some species
- Ecological consequences of seasonal shifts in harvesting are unclear
  - Pine harvests concentrated in spring
  - Disturbance-dependent species harvested in winter
- Multi-year studies needed to evaluate effectiveness of restrictions/guidelines/policies



# Conclusion

- Approximately 67% of sales had at least one seasonal restriction
- Seasonal restrictions reduced stumpage prices
- Seasonal restrictions imposed costs on forest industry
  - Inventory increases
  - Satellite wood yards
  - Wood quality reductions during storage
- Long-term ecological consequences are unclear

